

WHAT IS CLAIMED IS:

- 1 1. A deformable mirror comprising:
 - 2 a reflecting surface disposed on a diaphragm;
 - 3 a diaphragm carrier that supports the diaphragm, wherein the diaphragm carrier
 - 4 defines a non-circular, pressurizable rear surface of the diaphragm.
- 1 2. The deformable mirror of claim 1, wherein the rear surface is an approximately
- 2 rectangular surface.
- 1 3. The deformable mirror of claim 1, wherein the rear surface is an approximately oval
- 2 surface.
- 1 4. The deformable mirror of claim 1, wherein the rear surface is an approximately elliptical
- 2 surface.
- 1 5. The deformable mirror of claim 1, wherein the diaphragm carrier comprises a lateral
- 2 recess substantially parallel to the reflecting surface and adjacent to the rear surface of the
- 3 diaphragm.
- 1 6. The deformable mirror of claim 1, further comprising a cooling fluid in contact with the
- 2 rear surface of the diaphragm.
- 1 7. The deformable mirror of claim 6, wherein a pressure of the cooling fluid is different
- 2 from a pressure on the reflecting surface, such that the shape of the reflecting surface is
- 3 deformed.
- 1 8. The deformable mirror of claim 1, further comprising an actuator for pressurizing the rear
- 2 side of the diaphragm.
- 1 9. The deformable mirror of claim 1, wherein the diaphragm carrier comprises a pipe socket
- 2 with circular outer cross-section.

- 1 10. A method of reflecting a laser beam, the method comprising:
 - 2 directing the laser beam onto a deformable, reflecting surface, supported by a
 - 3 pressurizable diaphragm;
 - 4 altering a pressure within a diaphragm carrier that supports the diaphragm to deform
 - 5 the shape of the diaphragm and the reflecting surface, wherein the diaphragm carrier
 - 6 defines a non-circular pressurizable, rear surface of the diaphragm.
- 1 11. The method of claim 10, wherein the rear surface is an approximately rectangular
- 2 surface.
- 1 12. The method of claim 10, wherein the rear surface is an approximately oval surface.
- 1 13. The method of claim 10, wherein the rear surface is an approximately elliptical surface.
- 1 14. The method of claim 13, further comprising providing a cooling fluid in contact with the
- 2 rear surface of the diaphragm.
- 1 15. The method of claim 14, further comprising altering a pressure of the cooling fluid.
- 1 16. The method of claim 10, further comprising actuating an actuator to apply pressure to the
- 2 rear surface of the diaphragm.
- 1 17. The method of claim 10, wherein the diaphragm carrier is a pipe socket with circular
- 2 outer cross-section.